

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph at page 4, line 1 with the following paragraph.

The electroplating bath is typically an aqueous solution. In addition to water, the electroplating bath (or the ~~catholyte~~ catholyte and anolyte if a separator is employed) may optionally contain one or more co-solvents. Such co-solvents include water-miscible solvents such as alcohols, glycols, alkoxy alkanols, ketones, and various other aprotic solvents. Specific examples of co-solvents include methanol, ethanol, propanol, ethylene glycol, 2-ethoxy ethanol, acetone, dimethyl formamide, dimethyl sulfoxide, acetonitrile, and the like.

Please replace the paragraph at page 5, line 15 with the following paragraph.

Examples of alloy metal salts include aluminum salts such as aluminum acetate, aluminum bromide, aluminum chloride, aluminum fluoride, aluminum iodide, aluminum nitrate, aluminum oxide, aluminum phosphate, and aluminum sulfate; antimony salts such as antimony acetate, antimony bromide, antimony chloride, antimony fluoride, antimony iodide, antimony oxide, and antimony sulfide; bismuth salts such as bismuth chloride, bismuth fluoride, bismuth nitrate, bismuth acetate, bismuth methanesulfonate, bismuth oxychloride, and bismuth citrate; copper salts such as copper sulfate, copper polyphosphate, copper sulfamate, copper chloride, copper formate, copper fluoride, copper nitrate, copper oxide, copper tetrafluoroborate, copper trifluoromethanesulfonate, and copper trifluoroacetate; gold salts such as gold bromide, gold chloride, gold iodide, gold oxide, and gold sulfide; indium salts such as indium acetate, indium sulfate, indium phosphide, indium chloride, indium fluoride, indium bromide, indium nitrate, indium oxide, indium methanesulfonate, and indium trifluoromethanesulfonate; iridium salts such as iridium bromide, iridium chloride, and iridium oxide; iron salts such as iron acetate, iron citrate, iron sulfate, iron chloride, iron

fluoride, iron bromide, iron nitrate, iron oxide, iron tetrafluoroborate, iron phosphate, iron oxalate, and iron iodide; molybdenum salts such as molybdenum acetate, molybdenum bromide, molybdenum chloride, molybdenum fluoride, molybdenum oxide, and molybdenum sulfide; niobium salts such as niobium bromide, niobium chloride, niobium fluoride, niobium nitride, and niobium oxide; palladium salts such as palladium acetate, palladium bromide, palladium chloride, palladium iodide, palladium nitrate, palladium oxide, and palladium sulfate; platinum salts such as platinum bromide, platinum chloride, platinum iodide, platinum oxide, and platinum sulfide; silver salts such as tin salts such as silver acetate, silver carbonate, silver sulfate, silver phosphate, silver chloride, silver bromide, silver fluoride, silver citrate, silver nitrate, silver methanesulfonate, silver tetrafluoroborate, and silver trifluoroacetate; tantalum salts such as tantalum chloride, citrate, tantalum fluoride, tantalum nitride, and tantalum oxide; tin salts such as tin acetate, tin ethylhexanoate, tin sulfate, tin chloride, tin fluoride, tin iodide, tin bromide, tin methanesulfonate, tin oxide, tin tetrafluoroborate, tin trifluoromethanesulfonate, tin pyrophosphate [[,]] ; titanium salts such as titanium bromide, titanium chloride, titanium fluoride, titanium iodide, titanium nitride, titanium oxide, and titanium sulfide; tungsten salts such as tungsten bromide, tungsten chloride, tungsten fluoride, tungsten oxide, and tungsten sulfide; and tin sulfide; zinc salts such as zinc acetate, zinc citrate, zinc sulfate, zinc chloride, zinc fluoride, zinc bromide, zinc nitrate, zinc oxide, zinc tetrafluoroborate, zinc methanesulfonate, zinc trifluoromethanesulfonate, and zinc trifluoroacetate; and hydrates thereof.

Please replace the paragraph at page 5, line 25 with the following paragraph.

Specific examples of boron salts and boron containing compounds include boron nitride, boron trichloride, boron trifluoride, boron triiodide, boron tribromide, boron oxide, boron phosphate, dimethylamine borane, morpholine borane, dimethylamino borane, ~~dimethylsulfide~~ dimethylsulfide borane, t-butylamine borane, ammonia borane, N,N-diethylaniline borane, diphenylphosphine borane, dimethylaminopyridine borane,

ethylmorpholine borane, methylmorpholine borane, 2,6-lutidine borane, morpholine borane, oxathiane borane, phenylmorpholine borane, pyridine borane, tetrahydrofuran borane, tributylphosphine borane, ~~triethylamin~~ triethylamine borane, trimethylamine borane, borax, and hydrates thereof. Boron may alternatively be introduced into the electroplating bath by a boron containing acid, an amino-borane compound, and/or an amine-borane compound (collectively referred to as boron containing compounds). The boron containing acid does not include boric acid, as boric acid improves conductivity and/or is used as a pH adjuster. It is noted that the boric acid does not provide a significant portion of platable boron, although in some instances it may provide minor amounts of platable boron.

Please replace the paragraph at page 9, line 7 with the following paragraph.

In one embodiment, the quaternary alloy electroplating baths contain an effective amount of at least one sulfur containing brightener to improve the quality of the alloy deposit. Improvements in the alloy deposit include improving such characteristics such as one or more of the brightness of the deposited alloy, the luster of the deposited alloy, the levelness of the deposited alloy, the hardness of the deposited alloy, the reflectivity of the deposited alloy, and the similarity in appearance to a high quality chromium deposit. General examples of sulfur containing brighteners include sulfinic acids, sulfonic acids, aromatic sulfonates, aromatic ~~sulfonates~~ sulfinates, sulfonamides, sulfonimides, sulfimides, sulfo-betaines, and the water-soluble salts of these materials. Examples sulfur containing brighteners include the alkyl naphthalene and benzene sulfonic acids, the benzene and naphthalene di- and trisulfonic acids, benzene and naphthalene sulfonamides, and sulfonimides such as saccharin, vinyl and allyl sulfonamides and sulfonic acids.

Please replace the paragraph at page 14, line 12 with the following paragraph.

In another embodiment, the quaternary alloy electroplating baths contain an effective amount of at least one organic brightener to improve the quality of the alloy deposit. General examples of organic brighteners include acetylenic alcohols, ethylenic alcohols, acetylenic amines, acetylenic esters, acetylenic sulfonic acids and sulfonates, alkoxyated acetylenic alcohols such as ethoxylated and propoxylated acetylenic alcohols, acetylenic carboxylic acids such as ~~3-(2-propynoxy)-2-propenoic~~ 3-(2-propynyloxy)-2-propenoic acid, coumarins, aldehydes, compounds containing the C≡N linkage, and ~~N-heterocyclics~~ heterocyclics.

Please replace the paragraph at page 14, line 20 with the following paragraph.

Specific examples of organic brighteners include ethoxylated butynediol; 2-butyne-1,4-diol; propargyl alcohol; thiodipropionitrile; ethoxylated propargyl alcohol; hydroxyethyl propynyl ether; beta-hydroxypropyl, propynyl ether; ~~gamma-propynoxy,~~ ~~gamma-propynoxy~~ gamma-propynyloxy, bis-beta-hydroxyethyl ether 2-butyne-1,4-diol; bis-beta-hydroxypropyl ether 2-butyne-1,4-diol; 1,4-di-(beta-hydroxyethoxy)-2-butyne; 1,4-di-(beta-hydroxy-gamma-chloropropoxy)-2-butyne; 1,4-di-(beta-gamma-epoxypropoxy)-2-butyne; 1,4-di-(beta-hydroxy-gamma-butenoxy)-2-butyne; 1,4-di-(2'-hydroxy-4'-oxa-6'-heptenoxy)-2-butyne; N-(2,3-dichloro-2-propenyl)-pyridinium chloride; 2,4,6-trimethyl N-propargyl pyridinium bromide; N-allylquinaldinium bromide; 2-methyl-3-butyne-2-ol; N-allylpyridinium bromide; N-allylisoquinaldine bromide; 1-(beta-hydroxyethoxy)-2-butyne; 1-(beta-hydroxypropoxy)-2-butyne; phenosafranin; and fuchsin. Many acetylenic derivatives that may be employed as organic brighteners in the quaternary alloy electroplating baths include those described in the U.S. Patents 3,133,006; 3,140,988; 3,152,975; 3,160,574; 3,170,853; 3,305,462; 3,366,557; 3,699,016; 3,378,470; 3,502,550; 3,515,652; 3,711,384; 3,719,568; 3,723,260; 3,759,803; 3,795,592; 3,860,638; 3,862,019; 3,844,773; 3,898,138; 3,907,876;

10/772,595

TASKP104US

3,969,198; 4,036,709; 4,054,495; 4,062,738; and 4,421,611, which are hereby incorporated by reference.